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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,949

12/16/2004

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23850 7590 01/14/2010  
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EXAMINER

JOLLEY, KIRSTEN

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

01/14/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/516,949	<b>Applicant(s)</b> MATSUZAWA ET AL.	
	<b>Examiner</b> Kirsten C. Jolley	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-9 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9 and 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/7/09, 9/25/09</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed October 1, 2009 have been fully considered but they are not persuasive.

With respect to the 35 USC 102/103 rejections over JP 2000-183010, Applicant argues that the disclosure of JP '010 merely mentions "cups" for "recovery," but provides no description of "the intermediate cup wall 30," which the Examiner has taken as corresponding to the fences in the present application. The Examiner disagrees. JP '010 discloses use of intermediate cup wall 30 in paragraphs [0043] and [0044] and teaches that intermediate cup wall 30 separates the cups and that, between solution recovery and rinse recovery, intermediate cup wall 30 goes up to block the other cup. Thus the Examiner maintains that JP '010 does describe wall 30 and its function.

With respect to Applicant's arguments that JP '010 does not disclose the feature of claim 1 of "said plurality of fences is respectively driven only upwards to separately collect said plurality of treatment solutions by kind with each corresponding collection tank," the Examiner notes that these limitations are discussed in detail in the paragraphs of section 8 set forth below.

The 35 USC 102 and 103 rejections over JP 11-309404 have been withdrawn because the rejections merely duplicate those of JP '010, and because while JP '404 discloses use of more than two (two "or more") different solutions in paragraph [0140], the reference does not specifically disclose the use of more than two recovery tanks/cups.

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2. Additionally, it is noted that the prior art of Tsuchiya et al. (US 6,672,318) was newly found and is now applied in this Office action. This Office action is therefore made non-final.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3-5, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsuchiya et al. (US 6,672,318).

Tsuchiya et al. discloses a substrate treatment apparatus and corresponding method for using the apparatus comprising: a substrate holding unit holding a substrate W to be treated; a substrate spinning unit 10 spinning the substrate to be treated held on said substrate holding unit; a treatment solution supply unit 76 for supplying a plurality of treatment solutions onto the substrate to be treated; and a treatment solution collection unit 50 having a plurality of collection tanks 64, 66, 68 placed in a manner to surround a periphery of the substrate to be treated held on said substrate holding unit, and provided to separately collect by kind the treatment solutions scattered by said substrate spinning unit from the substrate to be treated, wherein said treatment

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solution collection unit collects the treatment solution by one of the collection tanks with inlets of the other collection tanks closed (see Figures 13-15 and col. 10, line 9 to col.12), and wherein said treatment solution collection unit 50 has a plurality of fences which sets each collection tank.

Claim 1 requires that the plurality of fences are driven *only upwards* to separately collect said plurality of treatment solutions. While Tsuchiya et al.'s method discloses that the plurality of fences are respectively driven only *downwards* when said plurality of treatment solutions is collected to separately collect said plurality of treatment solutions, the Examiner notes that the *apparatus* of Tsuchiya et al. would be structurally capable of driving its fences only upwards, and thus the apparatus of Tsuchiya et al. anticipates the claimed apparatus. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Further, it is well settled that the intended use of a claimed apparatus is not germane to the issue of the patentability of the claimed structure. If the prior art structure is capable of performing the claimed use then it meets the claim. *In re Casey*, 152 USPQ 235, 238 (CCPA 1967); *In re Otto*, 136 USPQ 459 (CCPA 1963).

As to claim 3, Figures 12, 14, and 15 illustrate a position of the substrate W that is located above positions of the fences which are not collecting the treatment solution.

As to claim 4, Figures 13-15 illustrate fences arranged in overlapping order, in a manner to close the inlets of the collection tanks. The treatment solution collection unit performs collection in order. While Tsuchiya et al.'s method discloses that the collection unit performs

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collection in order starting from a position closest to the substrate, the Examiner notes that the *apparatus* of Tsuchiya et al. would be structurally capable of performing collection starting from the tank farthest from the substrate to be treated, and thus the apparatus of Tsuchiya et al. anticipates the claimed apparatus limitation. The intended use of a claimed apparatus is not germane to the issue of the patentability of the claimed structure. If the prior art structure is capable of performing the claimed use then it meets the claim. *In re Casey*, 152 USPQ 235, 238 (CCPA 1967); *In re Otto*, 136 USPQ 459 (CCPA 1963).

As to claim 5, Figures 13-15 illustrate that the fences have a tip portion formed to be a reflective face that is curved to reflect the treatment solution scattered from the substrate W into the selected collection tank.

As to claim 7, drain units 70, 72, 74 drain the treatment solutions (col. 11, lines 6-9).

### ***Claim Rejections - 35 USC § 102/103***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 1, 3-5, 7, 9, 11-13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2000-183010 A.

JP '010 discloses a substrate treatment apparatus and corresponding method for using the apparatus comprising: a substrate holding unit 11 holding a substrate W to be treated; a substrate spinning unit spinning the substrate to be treated held on said substrate holding unit; a treatment solution supply unit 14a and 14b for supplying a plurality of treatment solutions onto the substrate to be treated; and a treatment solution collection unit having a plurality of collection tanks 15 and 16 placed in a manner to surround a periphery of the substrate to be treated held on said substrate holding unit, and provided to separately collect by kind the treatment solutions scattered by said substrate spinning unit from the substrate to be treated, wherein said treatment solution collection unit collects the treatment solution by one of the collection tanks with inlets of the other collection tanks closed (see Figures 4-5 and paragraphs [0032]-[0040] of the translation), and wherein a plurality of fences sets each collection tank and a movable fence 30 is driven upwards to form a conduit which separately collects treatment solution.

JP '010 illustrates only two cups and one movable intermediate cup wall (movable "fence") in Figures 4 and 5. However, JP '010 teaches in paragraph [0045] that use of two cups is merely exemplary and that "three or more cups can be arranged concentrically and can also be constituted" to collect the different kinds of treatment solutions. JP '010 further states that it is necessary that the cup for rinse recovery is arranged to the inside, nearest to the shaft or substrate, and that two or more cups may be arranged concentrically which correspond to the outside. It is the Examiner's position that, in the embodiment of JP '010 where the intermediate wall 30 between cups lifts upward to separate the collection cups and thus collection tanks, an

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engineer skilled in the art would have understood that the formation of three or more cups would necessarily require the use of two or more movable intermediate fences/walls (instead of a single one) to provide similar movable separation between the cups as described in the embodiment with only two cups. The claims are alternatively rejected under 35 USC 103(a) as well because, on the other hand, it would have been *obvious* and well within the skill of an engineer having ordinary skill in the art to have formed a third cup using a second movable intermediate wall 30 to create three cups, because the intermediate movable wall 30 is what separates cups, and since JP '010 teaches that its apparatus may be adapted to use additional solutions and numbers of cups. It is well settled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *In re Harza*, 124 USPQ 378 (CCPA 1960).

As to claims 3 and 11, Figure 4 illustrates a position of the substrate W that is located above positions of the fences which are not collecting the treatment solution.

As to claims 4 and 12, Figures 5 illustrates fences arranged in overlapping order, in a manner to close the inlets of the collection tanks. The treatment solution collection unit performs collection in order, starting from the collection tank at a position farther from the substrate to be treated.

As to claims 5 and 13, the figures illustrate that the fence has a tip portion formed to be a reflective face that is curved to reflect the treatment solution scattered from the substrate W into the selected collection tank.

As to claims 7 and 15, drain units 15b and 16b drain the treatment solutions.

***Claim Rejections - 35 USC § 103***

9. Claims 8, 9, 11-13, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al. (US 6,672,318).

With respect to method claim 9, Tsuchiya et al. differs from the claimed method in that in Tsuchiya et al.'s method, when said plurality of treatment solutions is collected, the plurality of fences are respectively driven *only downwards* to separately collect said plurality of treatment solutions by kind with each corresponding tank, instead of *only upwards* as claimed.

Tsuchiya et al.'s method teaches in col. 11, line 27 to col. 12, line 36 that, in the process steps of collection of treatment solution, fence 60, 62 and then fence 56, 58 are moved downwards between steps of mixed acid etching and dilute hydrofluoric acid etching, and between dilute hydrofluoric acid etching and rinse cleaning, respectively, to result in use of collections tanks in the following order: 68, then 66, then 64. Tsuchiya et al. does not disclose a criticality of using collections tanks in the above-described order, and it is the Examiner's position that it would have been obvious to an ordinary design engineer to instead perform the processing steps of Tsuchiya et al. by collecting in the opposite order -- from tank 64, then 66, and then 68 -- with the expectation of similar and equivalent results. Such a modified process would result in fences that are moved only upwards during collection, as claimed, instead of only downwards. The modified process of Tsuchiya et al. is functionally equivalent to Tsuchiya et al.'s disclosed process, and would still result in the separate collection of a plurality of treatment solutions into separate collection tanks, and would not affect the processing of the substrate or the collection of solutions. Further, it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

As to claim 11, Figures 12, 14, and 15 illustrate a position of the substrate W that is located above positions of the fences which are not collecting the treatment solution.

As to claim 12, Figures 13-15 illustrate fences arranged in overlapping order, in a manner to close the inlets of the collection tanks. The treatment solution collection unit performs collection in order. The process of Tsuchiya et al., modified as discussed in the paragraph above, would result in collection in order starting from the collection tank at a position farthest from the substrate.

As to claim 13, Figures 13-15 illustrate that the fences have a tip portion formed to be a reflective face that is curved to reflect the treatment solution scattered from the substrate W into the selected collection tank.

As to claim 15, drain units 70, 72, 74 drain the treatment solutions (col. 11, lines 6-9).

As to claims 8 and 16, Tsuchiya et al. lacks teaching use of a cleaning unit to clean the inside of the collection tanks. It is well known in the spin coating art that periodic cleaning of the coating apparatus is necessary in order to prevent buildup of treatment material on the inside of the apparatus because buildup could disturb the airflow inside the apparatus and/or potentially redeposit on a substrate. It would have been obvious to one having ordinary skill in the art to have provided a cleaning unit to clean the inside of the collection tanks in Tsuchiya et al. to perform such periodic cleaning.

10. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al. as applied to claims 1 and 9 above, and further in view of JP 2000-183010 A.

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As to claims 6 and 14, Tsuchiya et al. lacks a teaching of including exhaust ports for exhausting inside of its cups. It is well known in the spin coating art to include exhaust units for exhausting gases, separate from the drain units. JP '010 similarly discloses a spin coating apparatus and method which separately collects plural treatment solutions. JP '010 discloses exhaust port 35 for exhausting the inside of both cups 15 and 16. It would have been obvious for a design engineer having ordinary skill in the art to have included an exhaust port in the spin coating apparatus of Tsuchiya et al. in order to remove exhaust/contaminated gas in the apparatus, particularly upon seeing the teaching of JP '010, and further to have provided separate exhaust ports for each cup instead of a single exhaust port with the expectation of improved separation of exhaust gases.

11. Claims 6, 8, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-183010 A.

As to claims 6 and 14, JP '010 discloses exhaust port 35 for exhausting the inside of both cups 15 and 16. Thus JP '010 teaches using a single exhaust port/unit instead of separate ports. It would have been obvious for a design engineer having ordinary skill in the art to have provided separate exhaust ports for each cups instead of a single exhaust port with the expectation of similar results and improved separation of exhaust gases.

As to claims 8 and 16, JP '010 lacks teaching use of a cleaning unit to clean the inside of the collection tanks. It is well known in the spin coating art that periodic cleaning of the coating apparatus is necessary in order to prevent buildup of treatment material on the inside of the apparatus because buildup could disturb the airflow inside the apparatus and/or potentially

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redeposit on a substrate. It would have been obvious to one having ordinary skill in the art to have provided a cleaning unit to clean the inside of the collection tanks to perform such periodic cleaning.

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kirsten C Jolley/  
Primary Examiner, Art Unit 1792

kcj